

**Claims:**

1. A pair of molds formed substantially of silicon or silicon alloy for molding a sheet of thermoplastic material into an array of microstructures, each of the molds being a substantially planar wafer having a working face and rear face, the molds each having one or more micro fabricated recesses in their working faces which, when the working faces are placed face to face, define at least one cavity between the two molds, wherein the recesses on the molds are configured such that the molds only contact each other on the working faces, when the working faces are placed face to face.
2. The pair of molds as claimed in claim 1 wherein,  
in plan view one of the molds has at least one first recess formed in the respective working face for each cavity and the other mold has at least one first groove formed in the respective working face for each cavity, and  
wherein,  
when the two molds are in use, the at least one first recess defines a central portion of the cavity and the at least one first groove defines a perimeter wall portion of the cavity extending from the edges of the central portion.
3. The pair of molds as claimed in claim 1 wherein one of the molds has a recess therein having a base and one or more pillars of mold material extending from the base to the plane of the respective working face.
4. The pair of molds as claimed in claim 1 wherein one of the molds has a recess therein having a base and wherein at least part of the base is concave or convex with respect to the working face.
5. The pair of molds as claimed in claim 1 wherein:  
one of the molds has a first recess therein having a first base and wherein at least one part of the first base is concave or convex with respect to the mold's working face; and

the other of the molds has a second recess therein having a second base and wherein at least one part of the second base is concave or convex with respect to the mold's working face; and

wherein the first concave or convex parts of the first and second molds define a lens shaped cavity there between.

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6. The pair of molds as claimed in claim 1, wherein the working surfaces have been polished using conventional semiconductor wafer polishing techniques and the recesses have been formed using conventional semiconductor etching techniques.

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